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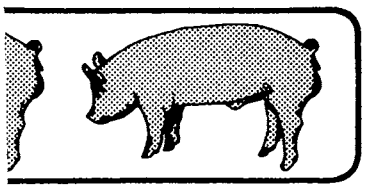

Swine Update

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Stall-out

The stall-out problem is generally described as a depression, or halt, in growth rate of finishing pigs about the time they reach weights of 140-200 pounds. Such a reduction in growth progress can result in a production flow "bottleneck" in many swine production units. Stall-out can be observed in swine operations year-round but probably occurs most often in Minnesota during the summer months. Although research information concerning stall-out is limited, many factors are thought to be involved. Following is a discussion of several factors that producers should consider or evaluate in their operations to minimize or eliminate the stall-out problem.

Health Status

It is highly recommended that producers first review the herd health status (and feed medication program) with their veterinarian to determine if disease can be ruled out. Obviously, depression in growth rate due to disease would mean taking a different approach to solving the problem than if other factors were responsible.

Feeding Program

Maintaining feed intake during the growing-finishing period is important to insure good growth performance. Only feed materials that are fresh and of good quality should be fed. Feeders should be checked frequently to make certain they are adjusted properly for adequate feed flow. It is also essential for the diet to be properly balanced, fortified with vitamins and minerals, and thoroughly mixed.

Energy Level — Growth rate is usually reduced if lower-energy feed ingredients are included in the diet to replace some corn or soybean meal. Consequently, a high-energy diet based primarily on corn and soybean meal should be fed during finishing to maintain growth performance. In some cases, increasing the feed energy density by adding 3-4% fat (60-80 lbs. fat/ton of diet) has been a satisfactory solution for reducing or

eliminating a stall-out problem. The greatest response to adding fat in the finishing diet occurs when the ambient temperature is above 75°F.

Protein Level -- Diets should be checked frequently to determine if the proper protein level (or level of some essential amino acids, especially lysine) is being acheived. Inadequate dietary protein will result in depressed growth rate. When diets are based on corn and soybean meal, a protein level of 16% for the growing phase (40-125 lbs.) and 14% for finishing (125 lbs. to slaughter weight) is generally recommended. It is important not to switch the growing pigs to the lower-protein finishing diet too early. All pigs in the group should weigh 100 lbs., or more, before switching them to the finishing diet. Making the switch too early could contribute to stall-out.

Molds and Toxins — If you are experiencing or suspect a stall-out problem, have your feed checked for molds. In most instances, mold-contaminated feed will result in depressed growth performance. Also, some molds produce a toxin which, when consumed in small quantities, can severely reduce feed intake and growth. Changing the grain source in the feed or diluting the contaminated grain with good-quality grain may be the only suitable solution to the problem. Adding mold inhibitors, such as propionic acid, formic acid, etc., to the contaminated feed or increasing the dietary protein level will not likely improve growth performance.

Flavoring Agents -- When a stall-out problem exists, altering feed taste by means of adding a flavoring agent may improve its acceptance (palatability) and thus return growth rate to a more normal level. Other possibilities would be to add about 3% liquid molasses or 1-2% sugar to the feed. However, according to several research reports, use of flavoring agents has met with only limited and varying degrees of success.

Environment

Environmental conditions that are less than desirable probably contribute more to the stall-out syndrome than any other factor.

Air quality -- The ventilation system should be thoroughly checked to make certain it is operating properly. Both air quality and movement are important for the well-being of the pig. High levels of aerial dust, ammonia (above 75 ppm), and hydrogen sulfide (above 20 ppm) will reduce growth rate. Aerial dust can be substantially reduced by adding 2-3% fat to the feed.

Temperature — Heat stress will definitely reduce a pig's appetite. Finishing pigs are heat-stressed at a temperature above 75-80°F. Therefore, supplemental cooling (drip cooling, mist sprayer, or foggers, etc.) is necessary in order to maintain a suitable growth rate. Cold stress is less likely to influence growth rate unless an extremely cold temperature is reached.

Pig Density -- Overcrowding will usually result in depressed growth rate. Reducing the number of pigs per pen or increasing the pen space per pig can be beneficial. A space allowance of 4.5 to 5 sq. ft. from 40-125 lbs. and 7 to 8 sq. ft. from 125 lbs. to market weight is generally recom-

mended in pens with slotted floors. Pig numbers per pen should be limited to 20-25 head.

Feeder and Waterer Space -- Providing adequate feeder and waterer space is also important. One feeder hole/four hogs and one waterer/15-20 hogs is considered satisfactory.

Pig Movement -- It has been reported that moving an entire pen of pigs that is experiencing stall-out to another pen or to another facility may improve their growth rate. The moving strategy will not be a practical solution in most operations and, for that matter, will not always result in success.

Genetics

An association of pig type (genotype-phenotype) and the stall-out syndrome is not known. There is limited evidence to suggest that smaller-framed pigs tend to grow at a slower rate, especially during the finishing period (or up to heavier weights), than larger-framed pigs. However, due to the many factors involved in stall-out, it is likely that pigs of any genetic background can be affected.

Comparison of Castration at Day 1, 7, or 14

There is an apparent trend in the swine industry toward castrating pigs at one day of age. Since day-1 castration coincides with the standard litter processing routine (ear notching, tail docking, clipping needle teeth, iron injection, etc.), less labor should be involved due to reduced piglet handling time. However, recent research conducted at the University of Georgia suggests that pigs castrated on day 1 may experience a slight loss in feed efficiency and leanness compared to pigs castrated at one or two weeks of age. In this study, 530 male pigs from ten farrowing groups were castrated randomly within litter on either the day of birth, day 7, or day 14. Pigs were palpated for scrotal hernia detection just prior to castration, and any subsequent herniation was recorded. Pigs were fed to market weight and slaughtered.

No difference in growth rate was noted between treatments. Barrows that were castrated at day 14 had a more desirable feed efficiency (3.13 vs 3.22) than day-1 castrates. Also, day-1 castrates had significantly more carcass backfat than day-14 castrates (1.57 inches vs 1.51 inches), with day-7 castrates intermediate. These differences, although statistically significant, were certainly not very large but could mean a feed savings (depending upon feed cost) of $1.00 to $1.40 per pig. The small difference in backfat could become more meaningful as the industry moves more toward the new "Lean Guide to Pork Value" hog buying system. The pigs used in the Georgia study could be considered only average, at best, for leanness. Whether or not the castration treatment response would be the same for a leaner strain of pig is not known. No difference in scrotal hernia detection was noted between treatments in this study. However, if a herd has a known occurence of scrotal hernias, it would be better to castrate at 14 days, because this allows for greater detection of the problem.

Even though there is generally less labor involved with day-1 castration, waiting until two weeks of age may offer some offsetting economic advantages.

Organic Acids in Pig Starter Diets

Most pigs experience a postweaning slump. An abrupt change in diet, adaptation to a new environment, and comingling with new penmates are all stress factors associated with weaning and contribute to postweaning slump. When the total stress is too great, postweaning scours often occurs, which usually increases piglet mortality. Getting newly-weaned pigs started on feed is important in reducing a performance setback. The inclusion of an organic acid in the starter diet may provide some help.

Organic acids such as fumaric, propionic, or citric acid are commonly used for preservation of food and to increase storage life of high-moisture feed when not stored in an airtight structure. Recently, several researchers have reported that adding any of these organic acids to the starter diet has resulted in improvement in daily gain and/or feed efficiency. The beneficial response from the organic acid appears to be that of improving the digestibility of the diet. Gastric production of hydrochloric acid by the weanling pig is thought to be inadequate to activate pepsinogen in the stomach, resulting in incomplete digestion. The response to organic acids may be greater when simple diets (based mainly on corn-soybean meal) are fed, since these diets tend to be less digestible than more complex starters. Organic acids may also have an antimicrobial effect whereby potentially detrimental bacteria are eliminated or reduced due to the lower gastric pH.

The organic acids in the above-mentioned studies were added at a level of 1-3% of the diet (a 1-2% addition was most common). Researchers have not always noted improvement in gain or feed intake when organic acids were added to starter diets at this level, but most have seen a 5-10% improvement in feed efficiency. Other studies have shown little benefit from adding organic acids to finishing diets, probably because of the more advanced development of the digestive tract in the older pig. As with any other feed additive that gives a positive response, the economic benefit of adding an organic acid must be weighed against its cost and handling characteristics. Commercial availability may be a problem with some organic acids.

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